BITTER-SWEET FOR EGYPT

RAISING OF ASSOUAN DAM EXTENDS FERTILE FIELDS BUT RUINS ANCIENT TEMPLES.

THE TEMPLE AT DAKKEH WHICH WILL COLLAPSE UNLESS UNDERPINNED

THE TEMPLE OF KOLABSCHA TO BE SUBMERGED TO HALF WAY UP THE COLUMNS

A NEW VIEW OF PHILAE NOW NEARLY SUBMERGED.

In reaching for the prize of fertile fields, which mean present prosperity, Egypt bids fair to wreck, if not completely lose the priceless archaeological treasures which have been her peculiar possession through the centuries, for the raising of the great Assouan dam has increased the height of the overflow waters until many of the ancient temples are completely submerged, while others are partly so. This annual encroachment of the mighty waters of the Nile upon the sacred places of Egypt is undermining the vast piles of stone and absolute ruin is inevitable. Thus must Egypt take the bitter with the sweet. Thus for her fruitful fields she must pay the price of her ancient monuments.

The Assouan dam, 850 miles above Cairo, was only completed a short time ago, and now the height of the structure has been raised so that the waters of the Nile spread out over a larger area of country. This dam is of solid masonry and is penetrated by 180 gates intended for regulating the flow of water. Constructed from granite blocks brought from the old quarries at Assouan, it runs directly across the river for a distance of 2,150 yards. Rising 130 feet above the foundation, the thickness of the dam varies from 23 feet at the top to 98 feet at the bottom. The additional masonry on the dam has raised it nine feet so that the stored water may reach a height of 23 feet above its old level. The 180 sluice gates include 140 lower sluices 23 times 6½ feet for the distribution of water and 40 upper sluices 6½ times 11 feet to permit the escape of surplus water. The iron gates of the sluices are regulated by the help of electrical winches standing on top of the dam. The total length of the immense dam is 1¼ miles; the height from foundation about 130 feet; the difference of level water above and below 67 feet and the total weight of masonry over 1,000,000 tons.

To the west of the dam has been constructed a navigation canal by means of which boats are "locked" up and down stream. The same length as the big dam, it is provided with four locks each 230 feet long and three feet wide. The two upper gates of the locks are 63 feet high, and the others 49, 39 and 36 feet high.

When the Nile begins to rise, usually at the beginning of July, all the 180 sluices are opened. After December 1, when all the suspended mud has passed through and the water has become comparatively clear, the gates are gradually closed, one after the other in regular order. The lake upon the dam becomes quite full about February 1.

When the want of water in Egypt begins to be quite noticeable, which is about the end of April, the quantity required for cultivation is drawn off gradually from the reservoir until it is entirely empty. This occurs usually about the middle of July.

The original plan for the Assouan dam was worked out by Sir William Willcocks at the Egyptian ministry of public works, under the superintendence of Sir William Garstin, under secretary of state. The carrying out of the plans was intrusted to a firm of English contractors, Messrs. John Aird & Co. Two months after the signing of the contract the permanent works were commenced, and soon thousands of native laborers and hundreds of Italian granite masons were hard at work laying the foundations and preparing the bed of the river to receive its enormous weight of masonry. In February, 1899, the cornerstone of the dam was laid by the duke of Connaught. Immediately after, the work was fairly started. At times there was great pressure to get a section complete before the inevitable rise of the Nile, and as much as 3,600 tons of masonry were executed per day.

On December 10, 1902, the dam was formally declared complete, though so many were the unseen and unexpected difficulties encountered that at one time Sir Benjamin Baker, under whose advice the plans were accepted, stated to Lord Cromer that he could form no estimate of the actual cost or time that might be involved. All that he said when the "rotten rock" in the bed of the river was discovered was that, "though conditions were bad, the job could be done." To which Lord Cromer replied that, whatever the cost in time or money, the dam must be finished.

This shows the spirit in which this gigantic enterprise was conceived and accomplished. On December 10, 1902, after three years of prodigious labor, the dam was formally declared complete in the presence of the duke and duchess of Connaught and Lord Cromer.

The quantity of water now stored is more than 2½ times that contained by the reservoir, and affords sufficient irrigation for 950,000 acres of land formerly lying waste in the southern districts of Egypt. The cost of this extension is estimated at £1,500,000 English money, or $7,500,000 American coin.

One unfortunate feature about this vast dam at Assouan is that the temples of Philae and many others in lower Nubia will be completely covered by the dammed up water, thus causing undue saturation of the sandy soil, which will probably undermine the foundations of the temples and ultimately cause their destruction if not removed. However, the idea of placing them on other sites has already been under serious consideration.

France Maintaining Her Sea Power.

France proposes to maintain her sea power. The new French Dreadnaughts which are building are to have armaments which, it is said, will place these vessels in a class superior to that of their British namesakes. A Paris paper states that the new battleships, six in number, are to be armed with the heaviest types of naval artillery used in France, each ship carrying 16 guns. Great improvement in the rapidity of fire has been made, and a competition among French naval armorers for improved devices for the rapid and efficient handling of heavy artillery on board ship has resulted in an automatic mechanism that will keep the guns trained on any fixed object as at first laid, in spite of the roll of the ship. It is calculated that the new battleships will be able to fire 11½ tons of shot a minute.

Several powerful armored cruisers will also soon be added to France's navy. Thus, while army reduction is favored, the sea power of the nation is to be strengthened.

THE ELECTRICAL WORLD

WIRELESS TELGRAPH DETECTOR.

Simple Apparatus Which Can Be Rigged Up by the Amateur.

One of the requisites of a good wireless telegraph detector of the crystal type, is that it be so constructed as to permit easy removal and substitution of different metals for the electrodes, as different metals sometimes produce different results.

The necessary parts of a simple yet very efficient wireless detector are as follows: A base, of the dimensions shown in Fig. 1; three inches of one-half-inch round brass rod; four inches of three-sixteenth-inch round brass rod; some brass tubing, three-sixteenths inch inside diameter, two

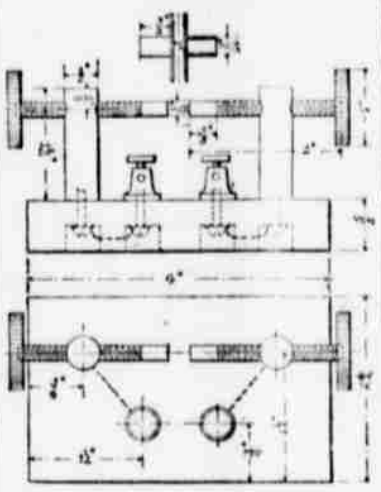
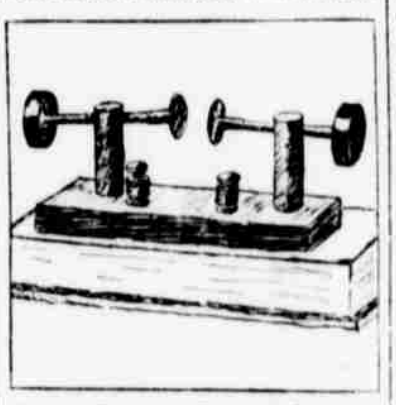


Fig. 1.—Details of Construction of Wireless Telegraph Detector.

thumb nuts of brass or hard rubber, and two binding posts.

The three-sixteenth-inch rod is cut into two equal parts, and both pieces threaded to within three-eighths inch of one end. The other rod is also cut into two equal parts, making a pair of standards. At one-quarter inch from the top of each of the standards a hole is drilled and tapped to receive the smaller rods. The other end of each standard must also be drilled and



Wireless Telegraph Detector Complete.

tapped to receive a machine screw, by which it is fastened to the base. The positions of the standards on the base are indicated on the drawing. The smaller or pressure rods are screwed in the holes of the standards, with the untapped ends facing each other, and the thumb nuts, having previously been tapped to fit the rods, are screwed on them.

The binding posts must now be mounted on the base, and connected to the standards by wires run underneath the base.

To make the removable electrodes, the brass tubing is cut in three-eighth-inch lengths, says the Scientific American. One-inch disks of one-sixteenth-inch brass, copper and other metals are cut out, and at the exact center of each is soldered one of the brass tubes, with its length perpendicular to the disk. When it is desired to use them, the tubes are slipped over the ends of the rods, a crystal placed between them, and the rods screwed up so as to hold the crystal in place. Carborundum and silicon are the most common crystals, although there are many others that produce excellent results.

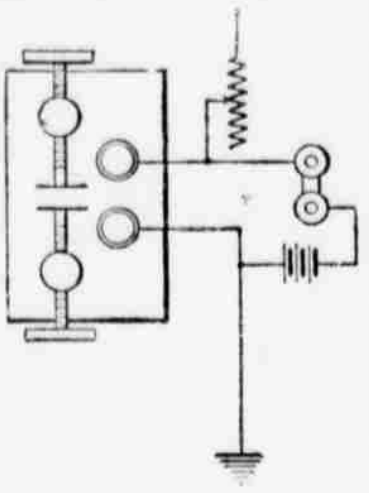


Fig. 2.—Electrical Connections of Wireless Telegraph Detector.

PLANTS BY ELECTRICITY.

Current Utilized to Stimulate Development of Vegetation.

The new system which has been introduced by Mr. B. H. Thwait, a famous electrical engineer, undertakes to supply all the necessities of the living plant. From a single gas engine, connected with an electrical apparatus, it is possible to obtain artificial light, carbonic acid gas, heat and energizing current to stimulate the growth of both the upper and lower portions of the plant.

It is a simple point, but in these experiments it has been found to be a very important one, to have the electric are continuously on the move. This is arranged by affixing the lamp to a small motor which runs up and down the house on rails. A moment's thought will show the purpose of this device. Owing to the apparent movements of the sun, the rays from the solar orb are never stationary for a single minute on any part of vegetation. Another special feature is the placing of a water screen so that the electric rays passing through this medium are robbed of most of their heat. Very much the same process goes on in the case of the sun and our world. The rays of light as they reach us have been toned down from much of their fierceness because they have passed through that which is practically a water screen, composed of countless myriads of moisture particles which go to make up our atmosphere.

If there is one direction more than another in which the use of electric light might be advantageously taken up by the gardeners, in the opinion of S. Leonard Bastin, who writes in the World Today, it is in the growing of greenstuffs for salads, etc. The great secret in the production of this particular class of material is to encourage a speedy development, not only that the stuff may be out of the way quickly, but because it is more sweet and tender. Such plants as mustard and cress, lettuce and other salads, respond in a magical way to electric rays. The crops are ready in about half the usual period, and an immense saving of time is the result with the further advantage that the produce commands a high price because it is good.

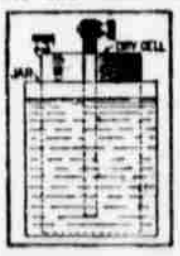
Electric Cars in Tientsin.

While the Belgian electric street railway lines in Tientsin, China, do not as yet pay much, the Chinese are riding on the cars in ever-increasing numbers, and in a few years the company expects to make handsome profits. There is evidently an end of all superstitious opposition.

A LITTLE ECONOMY.

How to Use Old Batteries as Wet Batteries.

Cut out the bottom of the dry battery and clean thoroughly. Punch



three or four holes with a nail or pointed instrument near the top of the cell. These holes will allow the air to escape when the battery is set in the solution, explains Popular Mechanics. Make a five-ounce solution of sal ammoniac and place it in a jar which should be a trifle larger than the dry battery. Set the battery prepared as above in this solution and you will have a good battery.

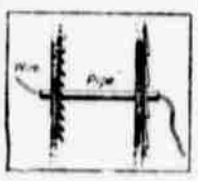
All Necessities Supplied.

As you grow ready for it, somewhere or other you will find what is needful for you in a book.—George MacDonald.

HINT FOR ELECTRICIAN.

To "Fish" Electric Wires Through Walls with Ease.

Electricians often experience difficulty in "fishing" wires through drilled



holes, and especially if there is an intervening space; a hollow wall for instance. This trouble may be overcome, says Popular Mechanics, by first inserting a piece of tubing or pipe—long enough to reach through both holes. The wire then may be pushed through this tube and the latter withdrawn. A tube or pipe having a five-sixteenths-inch hole and two feet long will do for general work. For bell wires a smaller one may be used. This little device will prove a time-saver for the electrician.

German children convicted of serious offenses numbered in 1905, 48,003, in 1906, 51,232, and in 1907, 65,216.

SPORTING FACTS AND FANCIES

Frank Chance of the Chicago Cubs team will not have a man on his squad who does not obey training rules or who is not gentlemanly in his lines of action at home or on the road. Twelve o'clock at night is the limit for old and young players and many of them take to bed earlier. "Perhaps the carrying of such high-class utility men as Hofman, Howard, Zimmerman and Durbin don't keep the Chicago National fielders on their toes all the way," remarked a baseball fan. "I doubt if Chance will let one of them go at least until the Cubs have been three-time winners. Should he win three times in a row he may be interested in a four-time record and still cling to his new developments." Before the National league was organized in 1876 Boston won what was known as the National championship four times in a row in 1872, 1873, 1874 and 1875. Since the National league was formed no club, no matter how clever or how fast, was able to last for more than three years in a row as champions of the organization. Chicago won the title in 1880, 1881 and 1882. Again in 1885 and 1886 the Chicago club won twice in a row. Boston came to the front with a three-time winner in the years 1891, 1892 and 1893. Then came Baltimore for its famous run of three in 1894, 1895 and 1896. Boston won twice in a row in the next two years and faltered. Brooklyn won twice and quit. Fred Clarke's famous Pittsburg team took up the running with a three-time winner, starting in 1901 and running through 1902 and 1903. New York crowded them out in 1904 and won again in 1905, followed by the machine Frank Chance created, with which he won twice, in 1906 and 1907, the last year taking a world's championship.

William Ralph Tozer of the Cincinnati club of the National league was born in St. Louis 26 years ago and learned to play ball on the lots. His first professional engagement was with the Salt Lake club of the Utah league in 1902. He remained with that team throughout its stormy Pacific National league career. In the fall of 1904 he joined the Los Angeles

team of the Pacific Coast league and made good. He was re-engaged for 1905 and proved to be one of the best pitchers in that powerful Class A league. That fall he was drafted by the New York American league club and in the spring of 1906 was turned over to the Buffalo club of the Eastern league, with which he remained until the fall of 1907 when he was purchased by the Cincinnati National league club. In the practice this spring he showed up so well that he has been retained as a member of the regular Cincinnati pitching corps.

"I do not believe in saving money by taking a short-handed ball club around the circuit," says Joe Cantillon. "Very often you want to make quick changes to save a close game. For one thing, I am a great believer in emergency hitters. We have some pretty good material in that line, and they bring in many a run. Again, sometimes when one run will tell the tale it is not a bad idea to take out a slow runner and substitute one who can turn a trick like the squeeze play, or stand more chance of stealing from first to second, where a hit would bring him home. For instance, Bert Keeley is one of the fastest men we have, and, although he is not due to pitch in the coming series, there is no telling when he might be useful in a pinch."

Columbus Gets Pitcher Harris.

Joe Harris, the Boston American pitcher, has been released to the Columbus American association team.

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